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WILDLIFE SERVICES—GUAM

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USDA Resolves Wildlife Conflicts in Guam

Every day, Guam residents, industries, organizations, and agencies call on Guam Wildlife Services (WS) for expertise in protecting agriculture, property, natural resources, and human health and safety from damage or threats posed by wildlife. Managed by professional wildlife biologists, WS responds with effective and humane strategies to resolve wildlife conflicts.

The brown tree snake (BTS), a non-native, invasive species on the island of Guam, has caused severe economic and environmental problems, and public health concerns for the island's residents and industries. The BTS has decimated most of Guam's native forest birds and lizards, a dramatic wide-scale destruction of native species unprecedented in modern



Top 7 Major Assistance Activities:

- Interdiction activities to prevent the inadvertent spread of the BTS to other Pacific Islands, Hawaii, and the U.S. Mainland
- Protecting endangered species including the Mariana gray swiftlet, Mariana crow, and the Mariana fruit bat
- Species restoration activities involving large-scale BTS control from areas designated for the re-establishment of the Guam rail and Micronesian kingfisher
- Protection of Guam's power infrastructure, including control at 17 individual transmission and distribution substations located throughout the island
- Surveillance of wild migratory birds for avian influenza
- Wildlife hazard management activities to prevent birds from striking aircraft
- Protecting human health and safety, and improving residents' quality of life from BTS impacts

Top 4 WS Research Projects of Interest to Guam:

- On-going research and development supported by the Guam WS program
- BTS trap design and strategies
- Development of oral toxicants
- Development of artificial attractants

ecological history. Snakes contacting electric power transmission lines have caused frequent power outages, resulting in millions of dollars in damage and lost revenue. Livestock producers have suffered losses from snakes preying on poultry and other small animals. Children and people sensitive to the snake's mild venom are threatened by the large number of snakes inhabiting urbanized areas on the island.

More significantly, BTS originating from Guam have been found throughout the Pacific region, associated with outbound commercial and military air and sea cargo. The abundance of snakes on Guam, coupled with the tendency of the BTS to hide in cargo, creates a significant threat to the biodiversity and economic security of the tropical Pacific.

At the inception of WS BTS project in 1993, little was known about the dynamics of BTS biology or its impact on Guam. Through more than 13 years of cooperative research and WS direct assistance, much has been learned.

This experience has led to the development of effective management protocols and techniques.

Applying Science & Expertise to Wildlife Challenges

In many instances, WS enables others to resolve wildlife conflicts through *technical assistance*, by providing information or equipment. However, when resolving these conflicts is beyond the means of the individual, WS provides *direct assistance* to manage wildlife damage where it is occurring. WS also conducts *scientific research* across the nation through the National Wildlife Research Center (NWRC) and its several field stations. NWRC conducts research to develop solutions to new problems posed by wildlife, and to ensure that WS specialists apply state-of-the-art science and technology.

While WS conducts a wide range of operational and research activities, a few

in-depth examples are provided to highlight WS role in endangered species protection and restoration, and BTS interdiction.

Protecting Endangered Species and Species Restoration—The role of WS in endangered species protection and restoration on Guam continues to develop. In cooperation with the U.S. Fish and Wildlife Service (FWS), the Guam Division of Aquatic and Wildlife Resources (DAWR), and the U.S. Navy, WS is helping protect the remaining 500 endangered Mariana gray swiftlets, which reside in three caves located on Navy property. Beginning in 1999, Phase I of the project demonstrated that the BTS, an agile climber, can reach and, therefore, prey upon swiftlets that nest and roost on the cave ceilings. Results from Phase II, completed in 2000, suggested that alteration to cave walls to prevent snakes from climbing them, in conjunction with active snake removal in the caves, would be too disturbing to the swiftlets.

WS, in consultation with FWS and DAWR, determined the best approach to protect the remaining Guam swiftlets would be to remove snakes near the caves and to construct a permanent snake barrier around the cave entrances. Currently, WS operates BTS traps around the perimeter of the three active caves used by nesting swiftlets. As result of the intensive snake management around these sensitive sites, swiftlet populations continue to increase, and the birds have recently re-colonized a former nesting cave.

The second endangered species project, initiated in April 2000, is being conducted in cooperation with Andersen Air Force Base (AAFB) and the Department of Defense. WS operates approximately 1,000 traps to remove snakes in the Munitions Storage Area (MSA) at AAFB. The work supports efforts to recover native Guam wildlife, including federally

endangered Mariana crows, Guam rails, and, eventually, Micronesian kingfishers. In May 2001, WS began integrating the use of acetaminophen (the active ingredient in many over-the-counter pain medications), which research has shown to be an effective oral toxicant for the BTS. As of October 1, 2006, nearly 12,000 snakes have been removed from the MSA via traps and toxicants.

Protecting Multiple Resources Through Brown Tree Snake Interdiction —WS' primary mission on Guam is to prevent BTS from reaching other tropical islands and the United States Mainland. Since the inception of the BTS project in 1993, WS staffing on Guam has grown to 55 full-time employees, including 15 canine teams and four additional employees working at a trap manufacturing shop in Washington. Containment efforts are focused at all commercial and military air and sea ports of exit, and 31 commercial freight forwarding warehouses. BTS populations around cargo and port facilities are reduced using specially designed snake traps, hand capture, and oral toxicants. Specially trained detector dogs are also used to inspect outbound cargo for any snakes that may have made their way into shipments bound for Hawaii, other Pacific Islands, or the U.S. Mainland. WS specialists are available at all times to conduct snake inspections. In addition, WS has an active public education campaign consisting of videos, brochures, and live demonstrations. Since the project's inception in 1993, WS has removed an average of 5,000 snakes annually from Guam's ports of exit.

Avian Influenza (H5N1) Surveillance —Pacific Islands could facilitate movement of Asian highly pathogenic avian influenza, (HPAI H5N1) from Asia to North America. Air and sea transportation links the islands to the U.S. Mainland, so any appearance of HPAI H5N1 in the islands increases its probability of reaching North America. Migratory birds from Asia winter on many Pacific Islands and closely associate with local wildlife and people. Thus, surveillance for HPAI H5N1 in Guam and other Pacific islands is a national priority. Guam WS', in coordination with the Hawaii Department of Land and Natural Resources, the Government of Hawaii, and other agencies initiated a broad-scale avian influenza sampling program to detect the potential presence of AI in migratory birds in the main Hawaiian Islands, Guam, the Common

Wealth of the Northern Mariana Islands, and Kwajalein, one of the Marshall Islands.

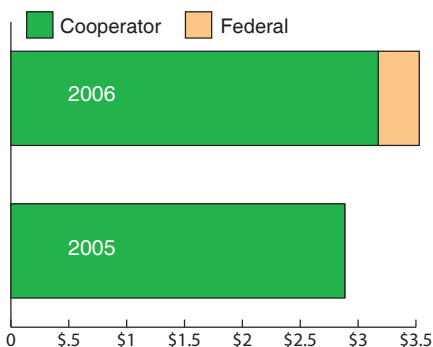
Looking to the Future

The primary focus of the WS program on Guam continues to be the BTS. While current research and operational activities have been extremely successful, the magnitude and complexity of this operational work creates significant challenges. The administrative needs associated with the BTS program are increasing as the program continues to expand in scope. Concerns regarding programmatic infrastructure must be addressed if WS is to succeed in preventing the escape of the BTS from Guam and assisting the residents of Guam with large-scale snake population reductions.

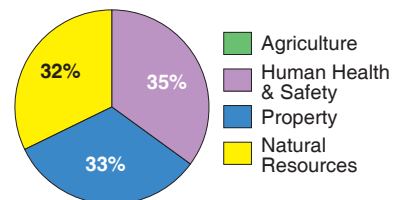
Guam Wildlife Services Funding

WS operates a cooperatively funded program. In addition to Federally allocated funds, the program also receives funding from cooperators with a vested interest in the program, including producers, private individuals, small businesses, and other Federal, State, and local government agencies. In most cases, these cooperators are in need of assistance to help resolve wildlife damage problems, or they have an interest in wildlife damage management.

Total Funding (Millions)



Resources Protected % of Total Funds



USDA is an equal employment provider and employer.

Major Cooperators

- U.S. Department of Defense
- U.S. Navy, COMNAVMAR
- U.S. Air Force, Andersen Air Force Base
- U.S. Department of Interior - Office of Insular Affairs
- U.S. Fish and Wildlife Service
- Government of Guam, Division of Aquatic and Wildlife Resources
- Guam Power Authority
- Port Authority of Guam
- Guam International Airport Authority
- Thirty-one, privately-owned freight forwarding companies